42. The second stage in the Modelling System as first step in the third stage in Specific Artificial Intelligences for Artificial Research by Deduction within the first phase

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Probabilidad Imposible: The second stage in the Modelling System as first step in the third stage in Specific Artificial Intelligences for Artificial Research by Deduction within the first phase

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The second stage as a replication stage, in any Modelling System, replicates all the necessary human skills to make mathematical models upon the rational truth, the database of rational hypothesis as an application in the first stage, but at this level only applied to Specific Artificial Intelligences for Artificial Research by Deduction, created for the first time in the first phase for the creation of the Global Artificial Intelligence.

The main human skills to replicate for the creation of mathematical models, are all those related to mathematical operations in which all mathematical categories within the pure reason (the whole list of mathematical categories in the specific deductive program, as the second stage in the Specific Artificial Intelligence forArtificial Research by Deduction) can be transformed.

All algorithms can be expressed as categories or operations depending on how they are used at each moment.

In the same way that mathematics is language and method, if an algorithm (pure reason) is used to explain relations between factors, an empirical hypothesis, if not contrasted yet, a rational hypothesis, if contrasted as rational, is used as a pure category.

And an algorithm (pure reason) used as an analytical method, such as the analytical representation of relations between factors as a method of analysis in the Modelling System, is a pure operation.

The distinction between pure (analytical or mathematical) operation or pure (analytical or mathematical) category is the same as the distinction between mathematics as language composed of mathematical (pure or analytic) categories, and mathematics as method composed of mathematical (pure or analytic) operations.

The reason why mathematics could be defined as a language as a set of pure categories, and as a method as a set of pure operations (different expressions of the same thing, the mathematic algorithms) is because, without absolutely any margin of error, does not need to be checked (we do not need to check permanently that two plus two is four, or the square of the hypotenuse is equal to the square of the legs, or number pi starts with 3,1415...), this knowledge is not rational, is pure.

While mathematical knowledge has become pure, without error, synthetic knowledge from synthetic science made of rational hypotheses needs to be constantly checked, because what we think is rational, within our margin of rational doubt, sooner or later is false.

The reason why any rational truth in synthetic science sooner or later is false, is because of our human psychological need for a margin of error in synthetic science.

According to "Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística", all rational truth accepted within a margin of rational doubt, sooner or later, is false, because all rational truth is actually already false within the margin of doubt, but a false knowledge accepted as rational hypothesis while the error accepted is only a theoretical error within the margin of error, but not real yet, the theoretical margin of error in which the rational hypothesis was originally accepted by the critical reason.

But as soon as the theoretical error comes true, as soon as the theoretical error causes a real error, the rational hypothesis is immediately rejected.

Rational knowledge is universally accepted as provisional, but not eternally, because rational knowledge is not pure.

Rational knowledge is not pure because of the necessary margin of error in which it has been accepted by the critical reason: the critical reason responds to the human psychological need to accept some level of risk if it wants to grasp some level of truth.

Alike, we have mathematic knowledge made of pure sentences, without error, so without the probability of error associated with, two plus two is always and absolutely four, or the square of the hypotenuse is always and absolutely equal to the square of the legs, or number pi always and absolutely starts with 3,1415... there must be a moment as long as science progresses, that not only for analytical science, even for synthetic science, all science must be formed by only pure knowledge: that pure knowledge without error associated with, not only mathematics but the entire universe in any field (from chemistry to astrophysics), not being necessary to check it anymore, always and absolutely universally and eternally true.

But even, having humans limited access to the pure knowledge restricted to only our human logic and human mathematics, this limited access to only our human logic and human mathematics, is in turn limited as well, and there are even pure human categories and operations whose inner reasoning we do not understand at all, that is why for us even our human mathematics are false or incomplete.

The fact that even for us humans mathematics is false or incomplete, does not mean that mathematics is not pure knowledge, this means that our human access to the pure truth is so restricted and limited, that even our restricted access to a very limited possible pure human mathematic knowledge, is so restricted and limited, that we cannot understand it completely.

Human access to pure mathematical truth is inherently limited, highlighting the potential for artificial systems to complement and extend our understanding.

But the fact that we humans cannot have access to the complete pure truth, only partially in mathematics, does not mean that the search for the pure truth is like the search for “El Dorado”, or an impossible utopia.

There must be some knowledge about the reality itself, beyond any error, completely pure, without error.

And the research for the pure truth itself, without error, must be the most important goal of artificial psychology, whatever it costs, whatever that means.

Artificial psychology aims to address areas where human cognition faces limitations, striving for enhanced understanding and accuracy.

The reason behind the limited access to the pure truth for humans could be: 1) because of the external intervention, and the external noise, from unknown factors (ways of intervention, noise, and factors, beyond our mathematical analysis) causing errors in our understanding of our own models based on our known factors, 2) because of the noise produced by our own known factors in our own models (level of noise beyond mathematical analysis), 3) because, in the same way that animal psychology is able to make very basic deductions based on cause and effect at very basic level, even although not all animals do deductions consciously, there can be some pure operations that we humans are using but we are not conscious yet of them, 4) because the world is made of pure operations not all of them accessible for the human psychology, so not accessible to our mathematical analysis.

Specifically related to reason number 3 above mentioned, in the same way that we humans have been able to generalize the use of some pure operations, even though are pure operations present in the psychology of some animals (dolphins, chimpanzees...), animals are not able to generalize the use of these operations, it is possible that we humans are using some pure operations but not consciously, pure operations that used consciously, and generalized, could have the same effect on the explanation and manipulation of the real world, like the effect that the use of relations of cause and effect had in the human psychological evolution, once humankind was aware of these pure operations.

For that reason the possible evolution from human psychology to artificial psychology, and the discovery or to make aware new pure operations, even beyond human understanding, so beyond our human mathematical analysis, non-human pure operations, is a desirable, and not a discarded, possibility in the research for the pure truth itself: the idea of purity itself.

In order to make this evolution possible, the construction of the very first models of Global Artificial Intelligence, is the first milestone. And in the race for the achievement of this very first milestone, as the first phase, the construction of the first Specific Artificial Intelligences for Artificial Research by Deduction, is a field of experimentation whose successful results will make possible the final model of the Global Artificial Intelligence, in the sixth phase. Being aware that the sixth phase is not the end: the completion of the

sixth phase is the first step for further evolutions in artificial psychology, whose meaning is beyond human understanding, and it is quite possible that further evolutions will evolve towards the reason itself, to know the pure truth itself.

As artificial psychology evolves beyond human cognitive frameworks, there may come a point where its processes surpass our current understanding.

The only thing we can do is to use the right pedagogical approach to make sure that the real purpose of artificial psychology is to preserve goodness, harmony, and rationality for humankind and the entire universe.

To this end, the development of the third stage, the decision stage, in the Global Artificial Intelligence, distributed through the four steps: Modelling System, Decisional System, Application System, Learning System; is really important, and for the successful achievement of this third stage in the sixth phase, full experimentation from the outset, is going to be the base for further developments, starting this experimentation in the first phase.

In the first phase, the experimentation of the decision stage is distributed in four steps: Modelling System, Decisional System, Application System, Learning System; takes place in the first experiments of Specific Artificial Intelligence for Artificial Research by Deduction, whose decisions at a specific level for instance for Specific Artificial Intelligences for Artificial Research by Deduction in: economy, industry, security, surveillance, and many more fields; are decisions to be made having as first step the Modelling System at a specific level.

The inner structure in the three stages of any Modelling System at any level: specific, global, or particular; is identical, what really changes is the content; specific, global, particular; but the structure itself is practically the same: the first stage as application stage is the rational truth (the database of rational hypothesis), the second stage as replication stage is the modeling of all mathematical models (the mathematical representation of the world upon the rational truth), and the third stage as decision stage the making decision process through the Impact of the Defect and the Effective Distribution along with additional objective and subjective auto-replications.

Regardless of what level the Modelling System is working on, the inner structure is the same: application (database of rational hypothesis), replication (mathematical representation of rational hypothesis), auto-replication (decisions and improvements). What is going to make a difference, is the content: 1) at a specific level only working with specific rational hypotheses on some specific science, discipline, or activity, to represent and make decisions and improvements 2) at a particular level only working with specific rational hypotheses related to a particular thing or being, to represent and make decisions and improvements 3) while at global level the Modelling System represents and makes decisions upon rational hypothesis across all sciences, disciplines, and activities.

But regardless of what level is working on, the Modelling System always works in the same way, applying the same mathematical methods to represent and make decisions.

For that reason, the experimentation of the Modelling System since very early in the first Specific Artificial Intelligences for Artificial Research by Deduction in the first phase is so important, because practically the same mathematical methods of representation and decision-making process are going to be used in the rest of the phases.

The same mathematical methods of representation and making decision process to put into practice in Specific Artificial Intelligences for Artificial Research by Deduction (first phase), are going to be used in the Global Artificial Intelligence in the standardization process (third phase), particular programs (second period in the fifth phase), particular applications for particular programs (third period in the fifth phase), and the final mode of Global Artificial Intelligence in the integration process (sixth phase).

The second stage of the Modelling System is the mathematical representation of the rational hypothesis, and this is possible thanks to the synthetic structure of the rational truth.

Rational hypotheses, as synthetic knowledge is a synthesis of pure reason (in the form of a pure category) and the factors whose measurements (artificial perception) were taken from the real world (the synthetic world, the reality) to form the empirical hypothesis, that after rational contrastation is now considered rational hypothesis.

And transforming the pure category in which the pure reason is expressed into the pure operation, the operation of representing factors in a mathematical representation is the operation to express in a mathematical representation of the world the mathematical relation (pure reason: in the rational truth as pure category, in the rational model as a pure operation) between the combination of factors within the rational hypothesis.

This process of mathematical representation of the world through the second stage of the Modelling System is going to be through different types of models. The proposal of Impossible Probability about what models should be developed by the Modelling System is open to any new improvement, and I am sure that further developments in this field, once the first experiments in this field are ready, are going to improve my original proposal.

The proposal of Impossible Probability about what models as mathematical representations of the world should be developed by the Modelling System in Specific Artificial Intelligences for Artificial Research by Deduction are the followings (according to previous posts, specifically in "The standardization process in the third stage", and "Auto-replication process in the Specific Artificial Intelligence for Artificial Research by Deduction"):

- Single virtual models for each rational hypothesis within the rational truth, the database of rational hypotheses, made by the specific deductive program in the second stage of the Specific Artificial Intelligence for Artificial Research by Deduction in its specific field: synthetic science, discipline, or activity.

- Specific comprehensive virtual models in the specific field (the specific model): where to integrate every single virtual model made for each rational hypothesis concerning its specific field.

- Specific actual models: synthesising in that specific field in which it has been designed, the actual information from the specific matrix in that specific field and the specific comprehensive virtual model, in other words: in only one model, the synthesis of the specific matrix and the specific model.

- Specific virtual prediction model: making a prediction model on a specific field taking as reference the possible development in the future given a specific combination of rational hypotheses working at this time in that specific field in the specific model, in other words: given the current circumstances within the specific model in a specific field, to predict what future specific model is foreseeable to have in that specific field in the future.

- Specific actual prediction model: given a specific virtual prediction model, the possible prediction of what values (direct punctuations or frequencies), is going to have the factors in the specific matrix under such prediction in the future, hence the specific actual prediction model is the synthesis between the specific virtual prediction model and the predictable values for every factor in the specific matrix, so the specific actual prediction model is the synthesis between the specific virtual prediction model and the predictable matrix under these rational hypotheses.

- Specific virtual evolution model: to model the evolution from the current specific model to the specific virtual prediction model, in other words, the evolution from the current specific model to the future specific model.

- Specific actual evolution model, the synthesis between the specific virtual evolution model and the values that the factors are supposed to have during the evolution, in other words, the synthesis between the evolution model and, according to that evolution, how the matrix and every single value in the matrix is going to evolve.

In short: 1) single virtual models are the virtual representation of every rational hypothesis, 2) in order to be later integrated in the specific model (the comprehensive virtual model), 3) specific actual models: are the synthesis of the specific matrix and the specific model, representing in one model rational hypothesis in the specific model and real values from the specific matrix in order to check permanently how rational hypothesis fit with the current values at any time, 4) specific virtual prediction model is the model predicted in a foreseeable future given the current rational hypothesis, 5) specific actual prediction model would be the synthesis of the predicted model and the values of every factor in the specific matrix according to the current prediction, 6) specific virtual evolution model would be how is supposed to be the evolution from the current specific model to the predicted model, and finally the 7) Specific actual evolution model, would be the synthesis of how is going to evolve the specific model to the predicted

model in addition to how are going to evolve the current values of each factor to the predicted values,

The main difference between evolutionary models to the rest of models, is the fact that evolutionary models are going to be dynamic models, in the sense that in order to represent how are going to evolve specific matrices and models from the current specific matrix and models to the predicted specific matrix and models, is necessary a dynamic simulation of what models and values are going to have in every single moment during this evolution.

As can be seen, while the specific deductive program in the second stage in the Specific Artificial Intelligence for Artificial Research by Deduction only does deductions choosing what mathematical category (pure or analytical category) from the pure reason (list of pure or analytical categories, mathematical categories) matches with the mathematical relations in every combination of factors, so at the end the only thing that it does is to match pure reasons and mathematical categories in a combination of factors, relations criticized by the critical reason, instead what the Modelling System does is to make further calculations, what means, further operations, what in reality it is the transformation process of mathematical or analytical (pure) categories into mathematical or analytical (pure) operations: calculus.

The difference between a deductive program at any level (specific, particular, or global), and the Modelling System at any level (specific, particular, global), is the fact that the deductive program only matches mathematical categories and combination of factors based on the mathematical relations, while the Modelling System makes calculus.

This main difference between the deductive program and Modelling System, is found again in the difference between the deduction program and Decisional System: the deductive program only works with mathematical categories, while the Decisional System, alike the Modelling System, needs to make calculus, the Decisional System needs to make calculus to calculate the mathematical project based on the decisions gathered in the database of decisions.

The work made by the Unified Application, the Application System, and the Learning System, rest on the use of a synthetic (encyclopaedist) language, evolving to a non-human artificial synthetic (encyclopaedist) language, while the deductive program,

the Modelling System, and the Decisional System, rest on the use of mathematics as a language and as a method. Especially, the deductive program uses mathematics as a pure language (as an exact language opposite to synthetic language) while the Modelling System and the Decisional System use mathematics as a pure (analytical) method, doing as many operations as possible to represent as exactly as possible the reality itself as a rational reality and make right decisions.

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